

## **Timeline of Surface Sediment Data Collection and Fish Tracking Issues**

**Yellow highlight** indicates a second part of the day (morning or afternoon/evening)  
**Red text** presents the key issue/violation of agreements, or planning documents (FSP, SOP etc)

**3/29/18 (Thursday)** - Surface Sediment Sampling Begins

**4/10/18 (Tuesday)** – 1.5 weeks into Surface Sediment Sampling, with limited oversight, CDM smith oversight staff notice the following:

- Pre-RD Group field crew have changed procedures from the SOP for Horizontal and Vertical Control;
- Several events of difficult penetration in hardened sediment conditions (not rock, or debris) that have the Pre-RD Group field crew hunting for softer sediment, which may be biasing the data
- Measurement errors related to penetration depth due to inconsistencies between boat crew for measuring from the bottom to the top, or top to bottom of the Ponar sampler.

As a result of the concern of these issues based on oversight observations, EPA requests information from the Pre-RD Group contractor about these changes and sampling information and asks for an updated schedule. **Note: Pre-RD Group decisions on implementation of field activities have changed dramatically since the last schedule was provided on March 13, 2018, yet no updated schedule has been provided.**

**Implications: EPA does not have a clear understanding of when activities are occurring which impacts oversight staffing**

**4/16/18 (Monday)** – After waiting on information requested approximately 1 week while surface sediment sampling continues, a conference call is held with Pre-RD Group to discuss oversight concerns. The following is discussed:

- **Pre-RD Group admits to changes in H&V survey control point approach and submits a field change request (post implementation);** Pre-RD Group agrees to submit a revised SOP with the current implemented approach
- Pre-RD Group still not providing information on surface sediment samples collected to-date.

**Implications: EPA not provided these changes in survey control points for review and approval. Sample locations could be incorrect that may require resampling that will increase costs and delay RD/RA progress.**

**4/17/18 (Tuesday)** – Updated Horizontal and Vertical Control SOP provided to EPA; some discrepancies noted between what the document says will occur and what the field crew are actually doing; **Clarification of this is requested, but this is the first reveal that AECOM management is not controlling, or directing field crews properly for implementing what is agreed to with EPA.**

EPA again asks for the pending data summary on the current sediment samples collected to-date; Ken Tyrell (AECOM) indicates they are still pulling it together and will provide ASAP.

**Implications: Breakdown in chain of command and communication creates inconsistencies in data collection and adherence to oversight direction. This can lead to improper data collection.**

**4/19/18 (Thursday) - AECOM informs Davis Zhen that there will be no room on the vessels for the start of the Fish Tracking program** which involves for the first 3 days setting the large transceivers for the fish tracking program. **EPA again requests an updated schedule.**

**Implications: Not accommodating EPA oversight staff is an act of non-cooperation. Without EPA oversight there is no way to ensure data is being collected properly and per approved plans.**

**4/20/18 (Friday morning) -** EPA continues to wait for data from AECOM on the surface sediment sampling; EPA discusses potential biases developing in the data with AECOM's approach to hunt for softer sediment; Existing Ponar equipment is deemed robust enough, so EPA, through John Kern's advice, develops a new approach to sampling hard sediment locations to evaluate this sampling bias, which involves collecting two samples instead of one in the primary area (a thin and thick sample) A sketch of the approach is provided to AECOM.

**4/20/18 (Friday afternoon/evening) - AECOM responds to this approach as too onerous and costly and EPA oversight staff start to hear that AECOM will be initiating a new sampling approach that they have developed (without sharing with EPA).** Earlier in the week and even previous week, EPA oversight staff began noticing field crew conversations with their management over the extended time taken at each location and they were being asked to look for ways to speed things up. Pre-RD field crew are noted as taking action/implementing this new plan developed by AECOM without providing the plan to EPA, or submittal of a Field Change Request. At 6:06pm (end of the sampling day) AECOM provides their new approach (already being implemented) in a confusing flow chart and provides data on the sediment sampling performed (which was requested by EPA on 4/10/18). Data was immediately reviewed by EPA and shown to be deficient from what was requested and providing data only up through 4/10/18; missing the last 10 days of sampling.

**Implications: Unilaterally implementing a plan before providing time for EPA to review and approve could result in compromised samples that would be invalid for the baseline data set. The expensive sampling may need to be redone, which will delay progress of Remedial Design and Remedial Action for Portland Harbor.**

**4/21/18 (Saturday)** - After EPA threatens shut down due their implementation of a plan not yet reviewed and approved by EPA, Pre-RD Group field staff begin to pre-select locations that are known to not have hard sediment to avoid the issues until an agreed-to method can be worked out. EPA requests CDM Smith to increase oversight to full time and every vessel

**Implications:** EPA's constant need to threaten shut down to have the Pre-RD Group contractor comply with agreed-to plans, or provide critical information is not a collaborative process. It leads to a breakdown in trust and poor moral between oversight staff and field crews.

**4/23/18 (Monday)** - EPA points out to AECOM that the data provided on the sediment sampling is deficient and sends another email with what is needed. *Note: This is 13 days after the information was requested.* Sampling continues, but Pre-RD field crew continues to pre-select locations based on soft sediment potential to avoid hard sediment locations. Fish Tracking receiver installation begins (without EPA oversight due to vessel space constraints)

Monday email to Davis Zhen from CDM Smith Oversight Task Manager Howard Young:  
*Davis,*

*I want to also point out that the AECOM field supervisors have said that their direction is to implement the AECOM 4/20 sampling plan (not EPA's plan) if they hit less than 20 cm on dense sand. This is despite our oversight staff informing them that the plan is not acceptable or approved by EPA. A shutdown situation didn't come occur over the weekend because they were getting full recovery on all of the grabs, but it will likely happen today.*

**Implications:** Unilaterally implementing a plan before providing time for EPA to review and approve could result in compromised samples that would be invalid for the baseline data set. The expensive sampling may need to be redone, which will delay progress of Remedial Design and Remedial Action for Portland Harbor.

**4/24/18 (Tuesday)** - Surface sediment sampling in soft locations continues; EPA points out to AECOM that oversight staff must be allowed room on the fish tracking vessel during receiver installation and that a second boat for oversight staff will needed to be provided if there is insufficient room on the boat. AECOM provides logistics for EPA oversight staff to board a second vessel for observing receiver installation on Wednesday.

**Implications:** Not accommodating EPA oversight staff is an act of non-cooperation. Without EPA oversight there is no way to ensure data is being collected properly and per approved plans.

**4/25/18 (Wednesday)** - Surface sediment sampling crews take the day off. AECOM provides a second boat for EPA oversight of Fish Receiver installation (about 14 receivers already installed on the previous days). After a focused call from EPA to obtain schedule immediately, AECOM finally provides an updated schedule more reflective of current and planned activities.

**4/26/18 (Thursday)** - Surface sediment sampling resumes. AECOM provides a second boat for EPA oversight of Fish Receiver installation (after about 14 receivers already installed without

oversight). Surface sediment sampling procedures are being confounded by AECOM Field crew and contractor following their 4/20/18 plan and not EPA direction:

#### **Issues/Concerns presented in Daily Report for 4/26/18 Thursday**

*There was a recovery of less than 20 cm at SG-B401 (RM 11.2 W) with an underlying sand layer after two successful grabs had been sampled. CDM Smith expressed that discarding the sample was not in line with EPA's procedure, which CDM Smith understood was agreed to by AECOM. After consulting AECOM management, weights were added to the sampler and two additional grabs were collected with above 20 cm recovery which completed both the normal sample and the low recovery sample per EPA's procedure, and with clarification from CDM Smith on the procedure.*

*AECOM has implemented a new procedure to move to the 50 FT radius after 2 grabs due to washout and move to an alternate location after 3 consecutive washouts with no sampleable recoveries. CDM Smith pointed out that this is not consistent with the FSP, which states that 3 attempts will be made in the 25 FT radius before moving to the 50 FT radius, and 3 additional attempts will be made in the 50 FT radius before moving to an alternate location. AECOM plans to proceed with this new procedure which only applies if no sediment recovery is made due to rocks and large debris causing washout. This was implemented today at location SG-B419 (RM 11.7 middle) where three consecutive grabs returned only cobbles, bricks, gravel, and trace sand and fines which were mostly washed out of the sampler as rocks prevented the jaws from closing. AECOM plans to move to the Alternate 1 location to continue sampling.*

**Implications: Unilaterally implementing a plan before providing time for EPA to review and approve could result in compromised samples that would be invalid for the baseline data set. The expensive sampling may need to be redone, which will delay progress of Remedial Design and Remedial Action for Portland Harbor.**

**4/27/18 (Friday – morning/afternoon)** - Surface sediment sampling resumes. AECOM finished with receiver installation and proceeds to test receiver gate communication/sensitivity – DEQ assists with oversight. Surface sediment sampling procedures continue to be confounded by AECOM Field crew and contractor following their 4/20/18 plan and not EPA direction:

#### **Issues/Concerns presented in Daily Report for 4/27/18 Friday**

*At locations SG-B319 and SG-B320, the first sediment grab contained recoveries of 16 and 17 cm, respectively. CDM Smith notified the sampling team that in these instances, they are requested to implement the sampling protocol provided by EPA on 4/20/18, or move on to another location until the PRP group comes to an agreement with EPA regarding sampling protocol for recoveries of <20 cm. In both instances the AECOM/Geosyntec sampling crew called project management to discuss the situation and get direction. Their project management directed them not to implement the EPA sampling protocol and asked some clarification questions to CDM Smith regarding the EPA protocol. CDM Smith answered the clarification questions but deferred to EPA for discussions and opinions on the sampling protocol and sampling equipment. Ultimately a decision was made by the field crew to move to another location to avoid a potential shutdown that could occur if protocols are implemented that have not been approved by EPA. CDM Smith pointed out to EPA the risks of AECOM/Geosyntec project management directly contacting the field oversight staff to debate EPA's directives on sampling and pressure them into changing protocols on the boat without involvement of EPA and their technical support.*

*The following locations were attempted and abandoned on the Tieton for later attempt either with larger equipment or at an alternate location to be determined by AECOM/Geosyntec:*

- SG-B399 – 5 total grabs, 1 grab with 16 cm recovery, 4 grabs were washed-out due to rocks in the jaws, EPA's sampling plan was followed, but due to the 4 washed-out grabs, the one aliquot was discarded.
- SG-B391 – 6 total grabs: 2 grabs just over 20 cm recovery were very gravelly; 4 grabs were washed-out due to rocks holding the jaws open. The two aliquots were discarded

*AECOM is implementing new procedures for sample attempts required per location as previously submitted to the EPA, but not approved. As outlined above only 5 grabs were made at SG-B339 which is inconsistent with the*

*FSP, which called for 3 sample attempts in the 25 ft radius and 3 more in the 50 ft radius. Additionally, AECOM verbally expressed multiple times it was their intention to move to an alternate location after only 2 failed grabs in the 25 FT radius due to washout and 1 failed grab in the 50 FT radius due to washout. Oversight inspectors pointed out that this is inconsistent with the FSP and EPA expectations. AECOM replied that it was never the intention to make more than 9 attempts per grid (3 attempts at the primary location, 3 attempts at alternate 1 and 3 attempts at alternate 2). This is AECOM statement is not consistent with previous oversight observations or AECOM statements on the topic.*

Notably: Not only did these sample events not comply with EPA's directed approach to collect surface grabs under hard sediment conditions, but they deviated from FSP approach for refusal/washout grabs that had nothing to do with hard sediment. It is becoming clear that AECOM is trying to use the EPA issue on hard sediment to implement short-cuts to FSP procedures for areas not related to hard sediment conditions, so that their sampling efforts could be shortened as they are falling behind schedule (see footnote i under 4-20-18, afternoon/evening summary).

Supplemental Data to fulfill a request on sampling details submitted on 4/10 was provided Friday afternoon.

**Implications: Unilaterally implementing a plan before providing time for EPA to review and approve could result in compromised samples that would be invalid for the baseline data set. The expensive sampling may need to be redone, which will delay progress of Remedial Design and Remedial Action for Portland Harbor.**

**4/27/18 (Friday evening)** - Email from Anne Fitzpatrick (AECOM) at 9:53pm presents a new approach, revised from the 4/20/18 approach presented to EPA that EPA had yet to fully review and approve. Anne proceeds to state in the email that this will be carried out for the weekend until a solution to a better sampling approach can be worked out.

**4/28/18 (Saturday morning)** - CDM Smith staff point out issues with the new plan provided by Anne Fitzpatrick (AECOM) and point these out to EPA. EPA allows sampling to continue, but states to AECOM that implementing their new 4/27/18 approach, or even 4/20/18 approach rather than EPA's two sample method will be at their own risk of resampling, CDM Smith oversight staff are informed. AECOM field crew choose to return to screening out hard sediment locations based on RI data and other information and focus on sampling soft sediment locations. No sample locations with hard sediment are encountered.

Review of the supplemental data on existing samples provided Friday afternoon shows continued deficiencies in what EPA requested from AECOM on 4/10 (after two explicit emails detailing the exact information needed). An email is sent to Ken Tyrell (AECOM) from Davis Zhen (EPA) presenting these deficiencies.

**Implications: Delays in providing EPA sample information collected to-date and when provided it is deficient with what EPA requested while the Pre-RD Group contractor continues perform sampling could result in compromised samples that would be invalid for the baseline data set. The expensive sampling may need to be redone and likely delay progress of Remedial Design and Remedial Action for Portland Harbor.**

**4/29/18 (Sunday)** - Surface sediment sampling continues; No sample locations with hard sediment are encountered.

**4/30/18 (Monday)** – Fish tracking work resumes from Friday and AECOM field staff informs EPA oversight that there is no room on the vessels for observing the fish collection and handling on the boats; EPA contacts Ken Tyrell (AECOM) and he corrects the situation and replies with the following message:

**Ken Tyrell (AECOM) email to Davis Zhen (EPA) on Monday 4/30 at 8:22am**

Davis,

*Pls have the EPA observer contact one of the two boat captains to coordinate logistics to join and observe the fish capture operations. For the record, the boats are quite loaded w/ equipment and coolers and such but the team has been instructed to make room for one observer on one boat (I trust that will suffice)...*

Note: Unclear why AECOM management hasn't made the fact that arrangements need to be made for EPA oversight on all sampling events as this was identified as a problem with them at the start of Fish Tracking on 4/25, yet the disregard for oversight accommodation continues.

**Implications: Not accommodating EPA oversight staff is an act of non-cooperation. Without EPA oversight there is no way to ensure data is being collected properly and per approved plans.**

Surface Sediment Sampling:  
AECOM resumes surface sediment sampling;

At 12:53pm CDM Smith Oversight Task Manager Howard Young sends the following email to Davis Zhen:

I wanted to notify you that AECOM have started collecting sediment samples under hard sediment conditions not following the EPA's alternative sampling procedure of 4/20/2018. They retained and composited a 10, 17, and 17 cm set of grabs in one bowl to archive at the laboratory but did not proceed to make additional grabs at the contingency step outs to complete a bowl 2. The location was random stratified sample 414. Our field oversight staff explained to them that they are not following EPA's directed protocol and they proceeded anyway.

Un-authorized  
FSP Change 1

**Implications: Unilaterally implementing a plan before providing time for EPA to review and approve could result in compromised samples that would be invalid for the baseline data set. The expensive sampling may need to be redone, which will delay progress of Remedial Design and Remedial Action for Portland Harbor.**

**5/1/18 (Tuesday)** – EPA Davis Zhen sends Pre-RD Group contract and letter notifying their deficiency in following the field sampling plan (FSP) on three recorded events (as described above).

**5/2/18 (Wednesday)** – EPA and Pre-RD Group meet to discuss surface sediment sampling issues and identify specific conditions to modify the current approach in the FSP. EPA and Pre-RD Group end the meeting with an action item for the Pre-RD Group to prepare the modified approach based on what was discussed during the meeting.



**5/3/18 (Thursday)** – EPA meet with Pre-RD Group to finalize porewater sample locations and approach; meeting deliverables provided by AECOM reveal a sonar survey was conducted during the upper reach surface sediment reconnaissance. This geophysical survey was not presented in the FSP and not reviewed or approved by EPA before the Pre-RD Group conducted the survey. Once again, this presents another instance in which the Pre-RD Group acted unilaterally in its decision to implement new data collection without notifying EPA and obtaining EPA review and approval. EPA Davis Zhen points out to the Pre-RD Group that these unilateral decisions cannot continue, and EPA must be included in any decision to implement a new data collection event or change in the FSP with a formal field change request for EPA review and approval.

Un-authorized  
FSP Change 2

**Implications: Unilaterally implementing geophysical survey before providing time for EPA to review and approve could result in an effort would be invalid for the data objective and incorrectly assign locations based on this additional line of evidence that was not vetted by EPA. This issue could delay progress of Remedial Design and Remedial Action for Portland Harbor.**

An additional FSP deviation was noted by EPA oversight inspectors who observed that fish scales were not being sampled for dating of the fish specified in the FSP. When the oversight inspector notified the Pre-RD representative on May 2, 2018 that collecting fish scales for age dating was in the EPA approved FSP, the representative responded that scale samples will be analyzed during the fish tissue sampling, and were not collected during surgery to minimize stress on the fish tagged for the study, thereby promoting fish recovery after the tag implant procedure. This deviation from the FSP was made without consulting with EPA or providing a change request for approval. Specifically, Section 4.6.2 of the FSP states:

*“Prior to being placed in the electronarcosis system, each SMB will be photographed (SOP-02, Digital Camera Use and Documentation Procedures) and have scales removed for age dating. Scales will be removed from the area posterior to the pectoral fin and slightly below the lateral line (DeVries and Frie 1996); scale samples will be placed in wax paper and placed in a coin envelope with the sample date and associated sample identification number clearly written on the outside of the envelope.”*

**Implications: Unilaterally implementing a change from the reviewed and approved FSP without notifying EPA presents a potential data integrity issue that may jeopardize the sampling program that could delay progress of Remedial Design and Remedial Action for Portland Harbor.**

Un-authorized  
FSP Change 3

**5/3/18 (Friday)** –

At 11am EPA receives a modification request to the Fish Tracking FSP related to the fish scale collection for age dating. EPA reviews and approves of the modification.

Friday afternoon, EPA oversight staff for fish tracking note a deviation from the FSP for the holding times of fish post sensor installation surgery. Oversight staff noted that the Pre-RD Group biologists have been releasing the tagged fish based on observations of normal fish behavior and not always keeping the fish for the full 2-hour observation period per the FSP protocol. One fish

was released after an hour of post-surgery observation. EPA oversight staff pointed out this FSP deviation and EPA's expectation of a change request prior to their making changes in the field.

**Implications: Unilaterally implementing a change from the reviewed and approved FSP without notifying EPA presents a potential data integrity issue that may jeopardize the sampling program that could delay progress of Remedial Design and Remedial Action for Portland Harbor.**

Un-authorized  
FSP Change 4

Friday evening (5pm), EPA oversight staff observing fish tagging were notified by Pre-RD Group field crew that they were going to mobilize in the field and perform a survey of the tagged fish which was not described in the FSP. EPA oversight staff pointed out this FSP deviation and EPA's expectation of a change request prior to their making changes in the field. Pre-RD Group proceeded with the activity despite the warning by EPA oversight staff.

**Implications: Unilaterally implementing a change from the reviewed and approved FSP without notifying EPA presents a potential data integrity issue that may jeopardize the sampling program that could delay progress of Remedial Design and Remedial Action for Portland Harbor.**

Un-authorized  
FSP Change 5

Friday evening 10pm, EPA receives meeting notes and modified approach narrative for the surface sediment sampling issues.